INTERNATIONAL TRADE ADMINISTRATION

2015 Top Markets Report
Technical Textiles and Apparel

A Market Assessment Tool for U.S. Exporters

July 2015

U.S. Department of Commerce | International Trade Administration | **Industry & Analysis (I&A)**

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Robert Carrigg and **Rachel Alarid** served as lead authors on this report. A special thanks goes to the many commercial specialists that reviewed early drafts and provided thoughtful insights and support.

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Executive Summary and Findings

The technical textile industry is as broad and diverse as the products it generates, with new and innovative applications being developed on a daily basis. The technical textile industry is also increasing proportionally relative to the whole textile industry. Therefore, the U.S. Department of Commerce's International Trade Administration (ITA) has committed to develop a tool for prioritizing U.S. Government export promotion efforts to help target resources towards technical textile markets and sectors most likely to result in U.S. exports. This study examines the U.S. technical textile industry and highlights key markets that will see increased exports by U.S. technical textile producers. This study examines both past performance of exports in this sector and projects estimates for growth through 2016.

The U.S. technical textile sector promises continued growth for the foreseeable future. In 2014, the United States exports of technical textiles (as defined by this study) totaled approximately $8.5 billion or 46 percent of U.S. textile mill product exports.

All indications are that the applications and markets for U.S. produced technical textiles in foreign markets will continue to evolve and grow. As current applications continue to validate the use of technical textiles, this will create more opportunities for even newer applications.

As there are several sub-sectors to technical textiles this study focuses on the export potential of four: non-wovens, specialty and industrial fabrics, medical textiles and protective apparel. Each of the four sub-sectors examined are performing well and show signs of positive and expanded export growth for U.S. exports. This study highlights the growth of technical textiles through a comprehensive analysis of specific trade data.

ITA has forecast expected growth trends and export market potential. Figure 1 ranks the top thirty markets for U.S. technical textile exports through 2016. This study is focusing on large established export markets such as Canada and Mexico, as well as key emerging markets like China, Vietnam, India, and others.

Understanding Technical Textile Markets

The technical textile industry is one where applications, technologies and companies are constantly changing and therefore exports tend to change as well. The demand for technical textiles in many countries is growing causing existing markets to expand and also leading to new ones.

As the market share of technical textiles consumed in the emerging economies relative to textile products overall is increasing, many countries meet their domestic demand for many of these advanced textiles through imports. This creates a major opportunity for U.S. producers. U.S. producers can take advantage of these gaps and meet the needs of emerging economies through exports.

North America is the largest regional consumer of technical textiles due to the presence of the majority of end-use industries. Europe and Asia Pacific follow North America in terms of current consumption; however, development in emerging markets including India, China, Japan, Korea and Taiwan is expected to increase overall technical textile demand. Among the best prospect in the emerging markets for U.S. companies are Vietnam, India, Taiwan and Brazil. Korea and Taiwan in particular are both committed to focusing on technical innovation. Korea and Taiwan are also strong competitors with the United States in the global technical textile market but exports to these

Figure 1: Projected Top Markets for Technical Textile Exports (2015-2016)

1. Mexico
2. Canada
3. China
4. Germany
5. Japan
6. Hong Kong
7. United Kingdom
8. Belgium
9. Brazil
10. Honduras
11. Netherlands
12. Korea
13. Dominican Republic
14. Australia
15. Taiwan
16. Singapore
17. India
18. United Arab Emirates
19. Colombia
20. Vietnam
21. Poland
22. Italy
23. Malaysia
24. Saudi Arabia
25. France
26. Chile
27. Thailand
28. Peru
29. El Salvador
30. Costa Rica

two countries are increasing and there are still positive opportunities for U.S. producers.

Non-wovens

The end use markets for non-wovens are classified as either disposable or durables. The disposable end use markets are made up of product categories such as absorbent hygiene, wipes, filtration, medical and surgical and protective apparel, while the durable end use markets are comprised of geosynthetics, home and office furnishings, transportation, building construction and other durables.

The ongoing drive to come up with new and better performing products is also helping propel the non-woven industry forward.[1] Nonwovens are being used to make products lighter, more efficient, and cost effective. More and more of these lighter and longer-lasting non-wovens are being introduced in a variety of fields including packaging and autos. In the latter case, one study suggested that more than 40 individual parts now are being made using these non-wovens, principally to allow increased vehicle efficiency, effect cost savings, reduce energy consumption and improve acoustical insulation.[2]

With respect to consumer goods, rising incomes and the standard of living in developing countries is propelling individuals to purchase convenience items, promoting the production of disposable infant diapers among other items that are made with significant amounts of non-woven fabrics.

Specialty and Industrial Fabrics

Specialty and industrial fabrics serve an array of markets, everything from awnings to auto airbags. As the U.S. specialty fabric business has continued to grow, some areas are seeing rapid advancement, for example, the base fabric used in road construction, erosion control, and spoil containment in landfills.

Automotive textiles represent the most valuable world market for industrial textiles. These materials cover a broad range of applications, including upholstery and seating, floor covering and trunk liners, as well as safety belts, airbags, thermal and sound insulators, filters, hoses, tires and a variety of textile-reinforced flexible and hard composites. The automotive textile industry is strong in many Asian countries such as China, Japan, India, Korea, Thailand and Taiwan. This is an area where U.S. industrial fabric producers have an opportunity to expand their market share.

Medical Textiles

Medical textiles are one of the most important, continuously expanding and growing fields in technical textiles. The medical textile industry has been improving existing products and creating new ones with new materials and innovative designs. Some of these new products are being designed for less-invasive surgical procedures, infection control, and accelerated healing.[3]

Economies are now supporting and providing various programs in order to promote the production and consumption of medical textiles. Population growth, aging populations and the construction of new medical facilities are a driving force for this industry. Some markets have also introduced diverse programs aimed at significant improvements in the healthcare of the country's population.[4]

The United States can continue its global market share in medical textiles through continuing to invest in research and development (R&D) and through identifying markets with expanding medical infrastructure.

Protective Apparel

North America emerged as the leading regional market for industrial protective apparel and accounted for over half of the total market volume in 2013. Stringent regulatory guidelines coupled with high levels of safety awareness in the industry are expected to drive the regional market growth over the next six years.[5]

Industrially advancing economies in the Asia Pacific and Rest of the World (RoW) also started implementing regulations to the same effect. The Asia Pacific is expected to be the fastest growing regional market for industrial protective apparel at an estimated compound annual growth rate (CAGR) of 12 percent from 2014 to 2020.[6]

A key driving factor in protective apparel is rapid industrialization and implementation of stringent industrial safety regulations in emerging markets. These measures are having a positive effect on the use of technical textiles, thus creating yet another opportunity for U.S. exports.[7]

Challenges Facing U.S. Technical Textile Exports

When designing export promotion strategies, one must be mindful of the challenges facing U.S. technical textile exporters in international markets.

First, protectionist policies like high tariffs and the imposition of non-automatic import license requirements limit demand for products exported from the United States. Industry has reported that Brazil and India have used some form of protectionist policies to limit opportunities for foreign manufacturers to compete in their markets.

Second, foreign competition and continual investment in research and development can pose additional challenges to U.S. producers. If U.S. producers aren't continuously innovating, another competitor may step in. Constantly advancing and updating current products as well as developing new ones are a requirement for success in technical textiles. New product development, however, is not an easy task.

Third, lack of transparency by foreign customs agencies also has a negative effect on U.S. exports. The requirement of extensive documentation and unclear regulations could slow the flow of trade and lead to processing delays.

Methodology

Accurately assessing the U.S. export market potential for the technical textile sector is difficult. This required several steps. The first step involved defining the technical textile sector itself. To accomplish this, as noted above, this study chose four sub-sectors of the technical textile industry to examine: non-wovens, specialty and industrial fabrics, medical textiles and protective textiles.

The second step required ITA to create a technical textile dictionary to define these four sectors. This dictionary was created using Schedule B commodity codes maintained by the U.S. Census Bureau of the international Harmonized System. This dictionary is made up of 133 schedule B commodity codes at the 10 digit level.

ITA then compiled export data for these commodity codes for a six year time period starting at 2008 and ending in 2014. ITA then calculated compounded annual growth rates as well as export market share for the six year period and using those rates projected the expected export potential for 2015 and 2016.

Case Studies

ITA identified eight markets from the top 30 for in-depth case studies: Brazil, Canada, China, India, Korea, Mexico, Taiwan and Vietnam. These markets represent a range of countries to illustrate a variety of points – not the top markets overall. Each case study contains a brief overview of the market's textile sector, then goes a step further examining the current state of its technical textile sector, i.e. current situation and needs, then challenges to exports are examined, followed by opportunities for U.S. exports of technical textiles in each sub-sector.

Trade Data

All U.S. export trade data used in this study was sourced from the Office of Textiles and Apparel, International Trade Administration, U.S. Department of Commerce.

A Few Caveats

This study is a good first step in analyzing U.S. export potential for technical textiles. There is, however, much more work still to be done. This study identified eight markets that pose good opportunities for U.S. producers and exporters. While these case studies describe each technical textile market, they are merely a start.

A future version of this study will include a more in-depth analysis of the foreign market's technical textile market. This will provide U.S. producers with more substantive information allowing them to be more successful in this pursuit.

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Country Case Studies

The following pages include country case studies that summarize export opportunities in selected markets. The overviews outline ITA's analysis of the U.S. export potential in each market, as well as opportunities by subsector. The markets represent a range of countries to illustrate a variety of points – and not the top eight markets overall. Exporters are encouraged to seek more detailed information from ITA when developing specific export plans.

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Brazil

Brazil is a growing market for technical textiles with emphasis on the nonwovens sector. ITA expects the Brazilian nonwovens market to lead the region and grow by 8-9 percent this year and next. Substantial and intensifying trade barriers, however, could hamper U.S. producers' ability to realize true market potential in the Brazil.

Non-wovens	Spec. & Ind.	Overall Rank
8	8	9

Medical	Protective
10	9

Brazil is a large, high-growth market that offers U.S. exporters tremendous opportunities. This large, advanced developing country has experienced rapid GDP growth rates and has rebounded most quickly from the global economic crisis. Given Brazil's attractiveness as a growth market, foreign competition in Brazil is intense.

All major competitors are now fully committed to this market. The stakes are raised by the fact that this is also a difficult market for U.S. companies to navigate. In addition to the cultural and bureaucratic differences, U.S. companies attempting to do business in Brazil too often encounter market access barriers. To address these challenges, the United States needs to focus attention on reducing these barriers to trade through continued commercial dialogues with Brazil. This will be vital for U.S. exporters to expand their reach in the Brazilian textile markets.

The Brazilian textile industry is constantly growing owing to the acquisition of modern equipment and technical development applied to production, and also the promotion of its professionals through training programs and increasing productivity. This development program has already received more than $8 billion. The program's objective is to strengthen Brazil's textile industry in the globalized and competitive market. [8]

Brazil is intensely investing in domestic production, with the goal of the textile sector to expand its operations. To achieve such aims, new investments in technology will be essential. At the same time, Brazil would like to increase its textile trade relationship with the United States but due to the trade barriers to foreign imports, exporting to Brazil can be difficult. Nonetheless, U.S. textiles are still going to Brazil in increased quantities year over year.

Overview of the Technical Textile Market

Brazil is among the top ten textile industry markets worldwide. Brazil's textile and apparel sector is the second largest employer in the country. The technical textile industry in a key export driven country such as Brazil continues to rapidly develop with investment from both domestic and foreign multinational companies.

The technical textile sector has over 200 companies currently operating in Brazil, employing roughly 40,000 people.

Technical textiles and nonwovens are two sectors which have found an increasingly greater number of applications in recent years in Brazil. The local market is developing at a fast pace, and many local textile manufacturers are now concentrating on this type of production. U.S. exporters have been taking advantage of this growth by increasing exports to Brazil 65 percent from 2008 to 2014. Additionally, exports of nonwovens increased 17 percent annually over this six year period.

The technical textile market expected to grow the fastest include disposable nonwovens with end use applications such as air and liquid filtration at 9.4 percent, absorbent hygiene at 8.4 percent, and wipes 7 percent. Within the durables market the only technical textile near the growth of the disposables is in the automotive market.[9]

Challenges and Barriers to Technical Textiles Exports

Brazil imposes high tariffs on U.S. exports across diverse sectors, including textiles. Brazil also applies federal and state taxes and charges to imports that can effectively double the actual cost of imported products in Brazil.

Textile companies have expressed concern about the imposition of non-automatic import licenses and certificate of origin requirements on non-MERCOSUR textiles. Non-automatic import license requirements and explanations for rejections of non-automatic import license applications are lacking. The lack of transparency surrounding these procedures can create additional burdens for U.S. exporters.

Exporters also note the imposition of additional monitoring, enhanced inspection, and the delayed release of certain goods, all of which can negatively impact the ability to sell U.S. made textiles in the Brazilian market.

Producing textiles in Brazil is expensive and the cost of labor is particularly high. In addition, U.S. companies often find Brazil's bureaucracy challenging, particularly for the import and export of goods.

Opportunities for U.S. Companies

The consumption of technical textiles per-capita in Brazil is considered very low in comparison to the developed world, however, the use of nonwovens and technical textiles has risen 10 percent per year. With an increased capacity for the production of technical textile industries, Brazil manufactures disposables, including absorbents (incontinence pads, diapers, tampons, sanitary towels, surgeon's wear, operating room drapes and staff uniforms, etc.). These products account for 40 percent of the total technical textile production in Brazil.

Technical textiles in Brazil have a vast space for growth in this sector, based on the expanding consumer market. This has created a significant opportunity for U.S. producers.

Non-wovens

Brazil is the fourth largest market for U.S. exports of nonwovens in the Western Hemisphere. Domestic demand for all types of products is rising in the region, which will help increase the demand of U.S. produced nonwovens. In the Western Hemisphere, U.S. exports of nonwovens is poised to grow fastest in Brazil.[10]

Nonwoven companies are beginning to focus attention on more non-traditional areas of Brazil. New investments are cropping up in the Northeast area of Brazil, which is one of the fastest growing markets in the country.

Specialty and Industrial Fabrics

There is room to substantially expand U.S. export opportunities. In 2009, specialty and industrial fabrics accounted for $40.7 million of U.S. exports to Brazil. This increased to $60.6 million by 2014. U.S. exports in this sector are expected to continue to grow to $64.7 million by 2016, which would be an increase of 59 percent from its 2009 level.

Medical Textiles

The Brazilian market is wide open for U.S. exports of medical textiles of all kinds. The market for disposable diapers (infant and geriatric) is dominated by foreign companies. U.S. exports of medical textiles to Brazil have increased at an annual growth rate of 7.6 percent since 2008. U.S. exports have increased from $17.4 million in 2008 to $27.1 million in 2014.

Canada

Canada continues to be an attractive export market for U.S.-made technical textiles, especially for companies that are new-to-export and/or new-to-market. The U.S. and Canada have one of the closest bilateral relationships in the world. Proximity, similar business cultures, and a high receptivity for U.S.-made products contribute to the high volume of bilateral trade between the U.S. and Canada. Like the United States, Canada has experienced an economic shift in its textile industry, moving away from manufacturing traditional high-volume commodity textile products to developing and manufacturing technical textiles.

The Canadian Market is the second largest market (behind Mexico) for U.S. exports of textiles and apparel. The implementation of the 1989 U.S.-Canada Free Trade Agreement, followed by the implementation of the 1994 North American Free Trade Agreement (NAFTA) has led to an increase in both trade and economic integration between the U.S. and Canada.[11] In 2014, U.S. textile and apparel exports totaled $5.52 billion, up 6.9 percent over $3.95 billion in exports in 2009.

The textile industry has a long and productive history in Canada, and like the United States has seen a production shift over the last decade from traditional textile manufacturing to the development and production of technical and non-woven textiles. Canada's textile industry has declined in size over the past decade and textile-related employment fell by 60 percent between 2004 and 2011, from 51,670 to 20,500. This is partly due to the decrease in demand for textiles used in the manufacturing of apparel, and because the manufacturing of textiles is automated and not labor intensive.[12]

Overview of the Technical Textile Market

Technical textiles comprise one of the largest markets in North America. Unlike traditional textile sectors (i.e. apparel and home furnishings), the manufacturing of technical textiles did not completely shift to Asia. The world market for technical textiles was worth approximately $133 billion in 2012, and is expected to reach up to $160 billion by 2018.[13]

In Canada, while the share of commodity-type textiles has decreased, the technical textile industry has experienced rapid expansion due to an advanced level of technical knowledge which is leading to the development of new textile-related materials that can be used in multiple applications in a variety of sectors, including: aerospace, construction and infrastructure, marine, medical, defense, safety, transportation, and agriculture.[14]

Challenges and Barriers to Technical Textile Exports

Even though the technical textile sector is growing, it is still susceptible to overcapacity and price competition. For example, spunbond nonwovens used in hygiene products or hydroentangled fabrics for baby wipes were once considered profitable niches, but due to global overinvestment of capacity and rising prices of raw materials like oil, this market has become commoditized and is now characterized by falling prices and low margins similar to traditional apparel-bound textiles.[15]

While Canada is one of the most accessible markets for U.S. textiles and apparel, the Canadian market can be quite challenging. Challenges include[16]:

- Canadian customs documentation
- Bilingual labels in both English and French
- Requirements for prepackaged textile goods
- Advertising requirements for textiles and apparel.

Currently bilateral trade between the United States and Canada totals about $2 billion dollars a day in goods and services. [17]

However, Canada's long-term trade strategy includes developing additional markets, which aims to reduce its dependence on the U.S. economy. When fully implemented the Canada-European Union Comprehensive Economic and Trade Agreement (CETA) will provide privileged access to each other's markets and has the potential to boost bilateral trade between Canada and the EU by as much as $20 billion a year, although it is unlikely to be ratified by Canada's provinces and the EU's member states before 2016.[18]

However, once implemented, CETA's Rules of Origin contain requirements under which a product qualifies as 'European' or 'Canadian', with the objective to avoid products of a third country indirectly benefitting from the Agreement[19]. Currently for every dollar of goods that the U.S. imports from Canada, there are about 25 cents' worth of U.S.-made inputs[20], and under CETA this may limit opportunities for American textile and apparel exporters.

Opportunities for U.S. Companies

Competition in the global market for technical textiles is very strong, but the biggest opportunities for U.S. exporters to Canada are in providing components for the energy, agriculture, construction, protective, automotive, and medical textiles sectors.

Nonwovens

As the technological properties of nonwoven fabrics are essential, the ability of U.S. domestic manufacturers to meet strict customer specifications (i.e. absorbency, strength, color, denier and other technical requirements) is a strength which allows the sector to keep nonwoven lines operating at full capacity and generate sufficient return on the substantial investment manufacturing lines require.[21]

In 2014, Canada was the second largest market for U.S. exports of nonwoven textiles. In 2014, the U.S. exported $434.6 million in nonwoven textiles to Canada, which was a 39 percent increase over $312.2 million that the U.S. exported in 2009. Nonwoven fabrics used as applications in construction, infrastructure projects, filtration, and automotive are the sectors in which U.S. manufacturers can be competitive in the Canadian market, as part of an overall North American strategy.

Specialty and Industrial Fabrics

U.S. domestic manufacturers who want to be competitive in the Canadian Market must be willing to invest in creating innovative fabrics not widely available in the Canadian Market. In 2014, Canada was the second largest market for U.S. exports of specialty and industrial textiles. In 2014, the U.S. exported $584.3 million in specialty and industrial textiles, a 19 percent increase over $492.2 million that the U.S. exported in 2009. Specialty and Industrial fabrics used in military applications, geosynthetic textiles (often applied in infrastructure construction), and tarpaulins and truck covers are examples of products in which U.S. manufacturers and exporters may be competitive in the Canadian market.[22]

Medical Textiles

World demand for disposable medical supplies is forecast to expand 6.2 percent annually to $198 billion in 2016. Increased enforcement of infection prevention standards, together with a growing number of hospital, surgical, and outpatient procedures, will promote overall gains.[23]

In 2014, the Canadian market was the second largest market for U.S. exports of medical textiles. The U.S. exported $150.7 million to Canada, which is a 4 percent increase from the $145.3 million exported to Canada in 2009.The Canadian medical textile market is a mature market, and in order to remain competitive, U.S. manufacturers need to be able to commit the resources that support the research and development of medical textiles that are innovative and not currently seen in the Canadian market.

Protective Apparel

In 2014 Canada was the largest market for U.S. exports of protective apparel, totaling $274.4 million in protective textiles and apparel, which is a 36 percent increase from the $201.2 million the U.S. exported in 2009. Technical textiles have become an important application in the manufacturing of apparel in the Canadian textile industry.[24] U.S. manufacturers may find export opportunities in niche markets including:

- High-performance outerwear
- High altitude clothing and sportswear
- High-performance wool apparel

China

As competition in the textile and apparel industry continues to increase, China has become a major producer and importer of technical textile products. Its market is expected to develop rapidly, driven by demand and government support. With constant market expansion and growth in the demand of technical textiles, opportunities exist for U.S. exporters, as there is substantial need from key technical textile industries, such as industrial and medical textiles.

China is the number one supplier of textiles and apparel to the United States. China was also the fourth largest market for U.S. exports of textiles and apparel in 2014, representing 5 percent of total exports. U.S. exports increased by 27 percent between 2009 and 2010 and by 7 percent between 2012 and 2013. At the same time China's textile industry is experiencing declining growth. Growth dropped from 10.8 percent in 2012 to 8.3 percent in 2013. In 2014, China expects the growth rate will further drop to 7.4 percent.[25]

China attributes this decrease in industry growth and declining overseas orders to labor and other costs rising too fast. Increasing labor costs have to some extent undermined the international competitive advantage of the Chinese textile industry. This has led to the growth of textile and apparel exports in other Asian countries.

As China is losing some of its global textile and apparel market share it is already shifting to more value-added products, namely technical textiles. In this endeavor the Chinese textile industry has committed to improve basic research and development projects and to bolster technical innovations.

Overview of the Technical Textile Market

The Chinese technical textile industry has experienced rapid growth over the past decade. Technical textiles are growing at a much faster rate relative to the whole textile industry. This industry developed relatively late in China as most domestic producers focused on the low and mid-end commodity market with little innovation. China is however, quickly improving its technologies. With significant support from the central government, many Chinese producers in the industry are now seeking to produce high end, high value-added products.

In 2013, the Chinese National Bureau of Statistics stated that exports of plastic coated fabrics, medical textiles, nonwovens, canvas textiles, bags and fiberglass were six categories of products whose value accounted for nearly 80 percent of the entire technical textile sector. Among them, the nonwoven fabric export growth rate reached 21.2 percent. Conversely, coated fabric, nonwoven fabric, glass fiber fabric, medical and health care textiles, and paper textiles are the main imported products, accounting for 81.2 percent of the total imports.[26] China mainly imports technical textiles from Japan, Taiwan, Korea, and the United States.

Constant infrastructure construction, fast development of the automotive, aerospace, and health care industries in China is also driving technical textiles demand. China's central government is also supporting the industry's development through different methods, and aims to increase the proportion of the technical textile industry relative to the overall textile industry. In 2010 the share of technical textiles in China reached 20 percent and moved up to 23 percent in 2013.

Challenges and Barriers to Technical Textile Exports

Foreign competition in China's technical textile industry is intense. All major competitors are fully committed to these markets in China. Similar to Brazil, the stakes are raised by the fact that China can be a difficult markets for U.S. companies to navigate. It can

be challenging for U.S. companies, especially SMEs, to navigate through complex governmental taxes and regulations. Additionally, in China, U.S. companies face a complex and often opaque commercial environment, and Chinese Government policies sometimes favor indigenous development and domestic companies.

Under China's "Demonstration Bases-Common Service Platform" export subsidy program, China seems to provide prohibited export subsidies through "Common Service Platforms" to manufacturers and producers across seven economic sectors (textiles, apparel and footwear is one of the seven) and dozens of sub-sectors located in more than one hundred and fifty industrial clusters in China.

This unfair Chinese program can be harmful to American workers and American businesses as China provides free and discounted services as well as cash grants and other incentives to enterprises that meet export performance criteria. In February, 2015 the United States Trade Representative decided to pursue dispute settlement consultations with the Government of China at the World Trade Organization (WTO) concerning China's "Demonstration Bases-Common Service Platform" export subsidy program.

Opportunities for U.S. Companies

China has initiated programs designed to facilitate the growth of production and applications of technical textiles. U.S. exporters are in a good position to meet these market needs. Major infrastructure projects such as roads, railways, hydroelectric dams, and airports require large amounts of technical textiles beyond the ability of China's domestic industry to meet.

Due to high market demand for technical textiles in China, more and more foreign producers have planned to expand their production and to introduce new products in China.

The high end technical textile market in China is dominated by foreign producers especially those from the United States and Japan. Thus, there is a great potential market for U.S. producers, especially those with advanced technologies and manufacturing methods.

Non-wovens

Ongoing economic advances in China will promote the development of the nonwoven sector, providing opportunities for nonwovens in a variety of goods, such as filters. With respect to consumer goods, rising incomes and standards of living will propel individuals to purchase convenience items, promoting the increased production of disposables among other items that are made with significant amounts of nonwoven fabrics.[27] This will create further opportunity for U.S. exports of nonwoven goods.

Specialty and Industrial Fabrics

Chinese specialty and industrial textiles have experienced steady economic growth. Since 2008, specialty and industrial fabric exports from the United States have grown at an annual rate of 6.5 percent. With China as a top automobile producer, there has been an increase in demand for automotive textiles. U.S. exports of specialty and industrial fabrics are expected to increase to $193 million in 2016 from $170 million in 2014.

Medical Textiles

Medical textiles are a top growth sector for the Chinese technical textile market. China was the thirteenth largest export market for U.S. products in this sector in 2008. The United States increased its exports to China raising it to tenth by 2014, and China is expected to move two spots higher, to eighth, by 2016. One of the major factors for this increase in demand of U.S. inputs and the continued growth of China's medical textile sector is advancements in the manufacturing process for producing advanced fibers and the replacement of traditional materials with advanced textile materials for higher performance. This is a strength of the U.S. industry and the U.S. industry is in a good position to take advantage of this demand.

Protective Apparel

Protective apparel is another technical textile industry that is experiencing rapid growth in China. Increasing industrialization in markets such as China coupled with the rising importance of safety in industries and the emergence of a manufacturing workforce are expected to remain key driving forces for the market and market potential for U.S. producers.

The high cost and complex manufacturing procedures associated with industrial protective clothing are expected to pose serious challenges for market participants. The State Administration of Work Safety

(the organization that governs industrial safety in China) has become actively involved in improving the workplace standards and safety parameters in Asia Pacific. Strict implementation of industrial safety regulations will provide U.S. producers the opportunity to meet the increasing needs of China's protective apparel market.

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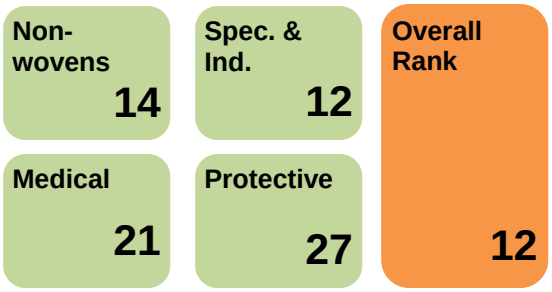
India

The Indian market is one of the largest and fastest growing economies in the world, but the Indian market continues to be one of the most challenging markets for U.S. exporters of textiles and apparel. U.S. exporters continue to encounter tariff and nontariff barriers that impede exports of U.S.-made textiles and apparel into India, including the Government offering subsidies to its textile and apparel sector in order to promote exports that benefit the domestic textile and apparel sector. Exporters are encouraged to look for niche opportunities to enter the Indian Market.



India is the 21st largest market for U.S. exports of textiles and apparel, even though India continues to be one of the most challenging markets for U.S. exporters of textiles and apparel.[28] In 2014, U.S. textile and apparel exports to India totaled $174.6 million dollars, which is an 51 percent increase over the $115.7 million exported in 2009.[29]

India's textile and apparel industry is considered the backbone of the Indian economy. As the second largest producer of textiles and apparel in the world, the industry is the second largest employer after the agriculture sector. The textile and apparel industry directly employs about 45 million people and indirectly employs about 60 million people.[30]

Overview of the Technical Textile Market

The Indian textile industry is emerging as a significant market for technical textiles due to factors like economic growth, strong government support, the introduction of necessary legislation and the development of tests and standards. Technical textiles are becoming one of the most promising sectors within the Indian textile industry. [31]

Currently domestic consumption of technical textiles only accounts for three percent of the total world consumption; however, demand for technical textiles is growing at a faster rate than it is in most developed countries.[32]

The strength of the Indian textile industry comes from its export earnings. The competitive advantage that India had in terms of its labor cost has been eroding slowly due to competition from countries like Bangladesh and Vietnam that offer a skilled workforce and cheaper labor. In addition to labor costs, the decrease in consumer spending during the global economic recession has forced the Indian textile industry to focus its attention to developing its technical textile sector.[33]

The Indian Government's incentive programs, focusing on both the development and production of technical textiles and the promotion of technical textile exports, have been key to the rapid growth of the technical textile industry. Programs implemented to stimulate the growth of the technical textile sector include[34]:

- Reduction in customs duties placed on imported technical textile machinery.
- Investment promotion programs to assist companies that are developing and manufacturing technical textiles.
- Market development support for both the domestic and international markets.
- An exemption in custom duties for raw materials used in the manufacturing of technical textiles.

Due to the focus the Indian Government has placed on the development and production of technical textiles, U.S. exports of technical textiles to India have grown at a compound annual growth rate of 10 percent between 2008 and 2014. U.S exports of technical textiles are projected to be worth $88 million by 2016 and increase of $15 million from 2014.[35]

Challenges and Barriers to Technical Textile Exports

The Indian market continues to be one of the most challenging markets for U.S. exporters of textiles and apparel to enter. U.S. exporters continue to encounter tariff and nontariff barriers that impede exports of U.S.-made textiles and apparel into India, including the Government offering subsidies to its textile and apparel sector in order to promote exports that benefit the domestic textile and apparel sector.[36]

Challenges facing U.S. suppliers of technical textiles who are interested in entering the Indian market include:

Foreign Direct Investment: Technology transfers are one of the key factors that have driven the Government's promotion of FDI, including the development of Special Economic Zones (SEZs)[37], which may not be advantageous to the foreign investors looking to protect their intellectual property.

Price: Another challenge that U.S. suppliers of technical textiles must address when entering the Indian market is price sensitivity. U.S. suppliers need to offer competitive prices in order to compete in the Indian market, because both Chinese and European suppliers are deeply entrenched in the market. [38]

Time: India's customs officials generally require extensive documentation, which may inhibit the flow of trade and may lead to processing delays. These delays are a consequence of India's complex tariff structure and multiple exemptions, which vary depending on the product, user, or intended use.[39]

Subsidies: India maintains several export subsidy programs that the Indian textile industry may benefit from, including[40]:

- Exemptions from taxes for exporters in the SEZs.
- Duty drawback programs that appear to allow for drawback in excess of duties levied on imported inputs.
- Pre-shipment and post-shipment financing to exporters at a preferential rate.
- Exemptions from customs duties and internal taxes, which are tied to export performance.

Other challenges facing U.S. exporters that are being addressed by the Indian Government under various technical textile promotion programs but may impede entry into the Indian market include[41]:

- Awareness: Consumers are not fully aware of the benefits of technical textiles especially in the medical and agriculture sectors.
- Standard and Regulations: India lacks defined standards and regulations (i.e. building codes) that would promote the usage of products made from technical textiles
- Cost: The cost of high-end products is causing low demand from consumers.

These challenges should not necessarily dissuade a U.S. supplier from entering the Indian market. U.S. suppliers should use due diligence and develop a comprehensive export strategy before attempting to enter the market. [42]

Opportunities for U.S. Companies

Unlike traditional textile sectors in India which are export intensive, the technical textile sector is an import intensive industry. About 30 percent of domestic demand is being met by imports. Technical textile components used in applications like baby diapers, incontinence diapers, and fabrics used to manufacture high altitude clothing are examples of best prospects for U.S. exporters looking to enter the Indian Market.[43]

Nonwovens

India's nonwoven fabric is still in its early stages, and is a sector of the textile industry that relies heavily on imports.[44] In 2014, U.S. exports of nonwoven textiles to India totaled $26.5 million which is a 139 percent increase over $11.1 million exported in 2009.

Nonwoven fabrics used as applications in the construction, infrastructure, filtration, and automotive sectors provide the best opportunities for U.S. suppliers of technical textiles.

Specialty and Industrial Fabrics

India's specialty and industrial fabric industry is highly fragmented and still in its infancy. India's share of the global specialty and industrial fabric market was about 9 percent in 2011 and was about the same in 2012. About 67 percent of India's production is of commodities; only 33 percent is high-end products.[45]

In 2014, the U.S. exported $36.4 million in specialty and industrial fabrics to India. This was a 63 percent increase from the $22.3 million exported in 2009. Indian domestic demands for specialty and industrial fabric include[46]:

- Geogrids
- Geomembranes
- Umbrella fabric (used in sun umbrellas)
- Sail cloth
- Ballooning fabric
- Hoarding Fabric
- Airbag fabrics

Medical Textiles

Domestic demand for medical textiles is growing in India, but the sector is still dependent on imports due to the non-availability of the fabrics used in making these products or the lack of manufacturing technologies to manufacture these technical textiles.

In 2014, U.S. exports of medical textiles to India totaled $6.5 million, which is a 171 percent increase over the $2.4 million that was exported in 2009.

Domestic demand includes[47]:

- Baby diapers
- Adult incontinence diapers
- Feminine hygiene Products
- Surgical disposables (masks, scrubs, gowns, booties, head coverings)
- Disposable wipes
- Surgical Dressings
- Artificial implants

Protective Apparel

In 2014 the U.S. exported $4.1 million in protective apparel to India. This is a 156 percent increase over the $1.6 million the U.S. exported in 2009.

The protective apparel sector of the Indian apparel industry relies on imports to meet domestic demand. U.S. suppliers of textiles used in the manufacturing of protective clothing will find the most opportunities for[48]:

- High altitude clothing
- High visibility and reflective clothing

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Korea

Due to shifting market conditions Korea refocused its textile industry towards the production of more technical products instead of basic textile and apparel items. It therefore is currently an attractive export market for technical textiles from the United States. Korea possesses a strong knowledge base in textile and apparel manufacturing technology. Over the past several years it has become very competitive in developing new technologies for the technical textile market.

Korea was the eleventh largest market for U.S. exporters of textiles and apparel and the thirteenth largest market for technical textiles in 2014. This is an increase of 37 percent for total textiles and apparel and 27 percent for technical textiles over 2009. This can be explained as Korea was one of the first countries to recover from the global financial crisis. This early recovery allowed the Korean economy to rebound in the third quarter of 2009. One of the factors responsible for this quick turnaround was increased export growth.

As Korea continues to rely on export-generated growth and continued demand for foreign direct investment and technology inputs, it will remain a strong trading partner with the United States.

Korea has set a goal to become the world's 4th largest export country in textiles and increase production by 63 percent by 2022. The Korean Government wants to boost the textile sector with the goal of creating new jobs, which will lead to growing consumption and higher economic growth.

Though there is strong competition from Korean producers in textile manufacturing, the U.S. industry remains globally competitive. The United States is the fourth largest single exporter of textiles to the world. The U.S. industry invests in R&D, and develops new technologies, especially in advanced or technical textiles to develop niche market expertise to remain globally competitive.

Korea took a step closer to its goal on March 15, 2012, when the United States-Korea Free Trade Agreement entered into force. The agreement is eliminating tariffs and non-tariff barriers to trade in goods and services, promoting economic growth, and enhancing trade between the two countries. The Agreement is also providing reciprocal duty-free access immediately for most U.S. textile and apparel goods that meet the rules of origin requirements.

The free trade pact with the United States has already begun to bolster Korea's textile sector, which has started to regain its past glory by producing high-tech, value-added materials. Korea has seen a surge in the demand for advanced industrial textiles in recent years, which are gaining popularity, and this has breathed new life into this sector. Such trends have pushed many companies to set up industrial textile production facilities that are starting to bear fruit.

Overview of the Technical Textile Market

Korean textile production amounted to $40 billion in 2012 and has positioned itself as a sustainable industry, accounting for 3.2 percent of the total Korean manufacturing sector. There are 6,043 companies listed in that sector and the sector employs 230,000 persons or 6.8 percent of the Korean workforce.[49]

Over one-third of all bilateral trade with the U.S. can be categorized as "advanced technology products". Over the past decade, U.S. exports have supported product development and other forms of research & development in Korea, setting the stage for long-term relationships with Korean partners in advanced technical textile sectors.

Korea is witnessing changes in the textile industry paradigm in the direction of technical textiles; this in turn is creating a rapid increase in demand for these goods. Demand from Korea improved its importance to U.S. manufacturers in this sector to thirteenth by 2013 and is projected to climb one step higher to twelfth by 2016.

For the five year period (2008 to 2013) exports of technical textiles from the United States to Korea increased 23 percent. For the next three years (2013 to 2016) that figure is projected to almost double to 45 percent. This could lead one to the conclusion that there is a rapid increase in demand for technical textiles in Korea.

To continue to build on this growth Korea has already acknowledged its need for sophisticated technological workers with a high level of knowledge of textiles and technology. Korea is working on a customized mass production technology developed for smart textiles and apparel.

Challenges and Barriers to Technical Textile Exports

There has been a decline in the number of operations and employees in recent years in Korea due to labor shortages, rising costs and growth in competition from other Asian countries with far lower production costs. Korean apparel companies have also moved manufacturing operations to China, Vietnam, Cambodia and Bangladesh to lower production costs. These companies are producing apparel goods using technical textiles in its foreign operations. Additional challenges are intense market competition and the enhancement of the Chinese industry. Korea could face a fall in its potential growth rate without immediate action. This in turn could negatively affect the United States' export growth in technical textiles to Korea.

The Korean Government announced steps in November of 2012 to ease work visa and citizenship requirements. Allowing foreign workers in Korea is one step towards addressing Korea's labor shortage and maintaining its continued growth.

Furthermore, the Industrial Fabrics Association International (IFAI) has stated that under the U.S.-Korea FTA, goods from Korea would enjoy duty-free entry into the U.S., while U.S. exports to Korea would be subject to a 10 percent value added tax (VAT). The measure also would allow Korea to raise its VAT rate above 10 percent.

Korea has recognized these inconsistencies and their future impact on trade if left untreated. Korea has been addressing these challenges with the U.S.-Korea FTA and with the ongoing FTA negotiations Korea is engaged in with China.

Opportunities for U.S. Companies

Korea has acknowledged that in order to maintain its textile sector it will require increasing the demand for sophisticated technological workers with a high level of knowledge, technology and textile expertise.

Their export position should be strengthened by the U.S.-Korea FTA and other trade agreements Korea has entered into. These FTAs will necessitate the introduction of advanced technology, thus there is an urgent need to achieve a differentiation in textile fabrics and textile products, as against the import of cheap clothing from developing countries.

Therefore, there is an increase in demand from new sectors. Korea has stated there is a strong need for medical and health related fibers and products as well as apparels for protection and health care.

With the already developed technical textile sector in the United States, U.S. exporters are in an ideal position to take advantage of this need. The U.S.-Korea FTA provides a framework in this effort by strengthening trade and investment ties, establishing strong enforcement provisions, creating export opportunities, support export-related jobs and enhancing U.S. competitiveness.

Non-wovens

The Asian market of nonwovens is experiencing huge growth because of explosive baby diaper needs from emerging ASEAN countries and adult diaper needs from Korea and Japan due to their aging societies. To satisfy these needs, technical textile producer, Toray Advanced Materials Korea has extended its capacity in Korea, China and Indonesia. Toray Advanced Materials Korea has made global nonwovens market strategy and led R&D as a headquarter with Toray Industry.[50]

This is reflected in the data of nonwoven goods being exported to Korea from the United States. Korea has seen a surge in U.S. exports of nonwoven fabrics from 2008 to 2014. Exports from the U.S. to Korea are

projected to increase 43 percent, increasing from $29 million in 2008 to a projected $41 million in 2016.

Specialty and Industrial Fabrics

The U.S. International Trade Commission, a bipartisan federal agency, estimated the U.S.-Korea FTA will lead to increased U.S. textile exports to Korea of specialty and industrial fabrics. The USITC has been proven true as Korea was the seventeenth largest market for specialty and industrial fabrics in 2008 but by 2014 Korea climbed seven spots to the become the tenth largest market, only two years after the U.S.-Korea FTA went into force in 2012. Korea is projected to climb one spot higher by 2016.

In dollar terms, the U.S. has seen the value of exports of specialty and industrial fabrics increase from $28 million in 2008 to $44 million in 2014 and should continue this upward trend to $51 million by 2016. That is an 82 percent increase over the eight year period.

Medical Textiles

Korea has developed an import dependence on such medical textiles as surgical sutures, artificial blood vessels and wound dressing products. Korea is also dealing with trade deficits in high value-added fields, including wound treatment, surgical sutures, transplantation meshes, blood filters and hemodialysis devices.[51]

It has become vital for Korea to continue its pursuit of developing medical textile technologies. R&D in medical textile fields has become more active in provincial areas. Additionally, Korea has established an MOU among the Korea Textile Development Institute (KTDI), the Korea Dyeing Technology Research Center (DYETEC), the Korea Textile Machinery Research Institute (KOTMI), and the Catholic University of Daegu to pursue R&D activities in the medical textiles sector.

This is all encouraging to U.S. producers of medical textiles, as exports to Korea are expected to increase 23 percent from $19 million in 2012 (U.S-Korea FTA entered into force) to $23.5 million in 2016.

Protective Apparel

There is ongoing R&D in aramid fibers for anti-ballistic applications, and fire resistant products. In 2008 the U.S. exported $15 million in protective textiles and apparel to Korea. This should continue to increase to $19 million in 2016.

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Mexico

Mexico is the United States' largest market for textiles and apparel. Due to the size of Mexico's textile and apparel sector coupled with its proximity to the United States and the flexibilities afforded to U.S. exporters through NAFTA, ITA expects continued investment in all four technical textile sectors and continued growth into the future. Mexico remains an important export market for U.S. technical textile products, accounting for 36 percent of total U.S. technical textile exports in 2014.

Mexico's textile and apparel industry accounts for 6 percent of the country's gross domestic product and nearly 20 percent of all manufacturing employment in Mexico, employing almost 415,000 workers in 2013. Mexico's industry is based on competitive labor costs and geographic proximity to the United States. The pattern has been for U.S. companies to supply textiles and fibers to Mexico's in-bond processing factories (known as maquilas or maquiladoras) that receive favorable fiscal and trade treatment. The maquiladoras then re-export these inputs after processing in the form of finished garments.

After losing a portion of its U.S. market share to developing countries, Mexico has been clawing back some of its competitiveness in the United States through expanding its reach in other textile markets.

Textile firms in Mexico realized they needed to increase their competitiveness by investing in expanding production centers and manufacturing high-quality textile products, in order to compete in international markets.[52]

Mexico is forecast to become the largest economy in Central and South America within ten years. U.S. exports of textiles and apparel to Mexico accounted for approximately 26 percent of total U.S. textile and apparel exports in 2014. Textile and apparel exports to Mexico increased from $5.8 billion in 2013 to $6.2 billion in 2014 (an increase of 8 percent).

Overview of the Technical Textile Market

Mexico is the largest market for U.S. technical textiles, and plays a special role in trade with the United States textile market. Mexico, therefore, is an ideal starting point for new exporters. Exporters should be aware of the well-established U.S.-Mexico trading relationship and draw particular attention to the relatively low market access barriers to foster and expand current and future trade with Mexico.

The Mexican textile industry, however, has faced growing competition from countries like China, a situation that was compounded when the latter joined the World Trade Organization (WTO). This competition has forced the Mexican textile industry to take stock of the textile sector and make adjustments to its production activities.

To accomplish this, the Mexican textile industry has decided to articulate its different value chains, promote competitiveness through innovation, design and technology, and position Mexico as a textile leader internationally.[53]

The Mexican Government has acknowledged the need to promote these technical industries, which have the ability of taking on other international manufacturers in terms of price and quality.

If Mexico's textile industries can continue to adapt quickly to the needs of the domestic and international markets, and turn competition from abroad into an opportunity for innovation, they are poised to maintain their standing as the top destination for U.S. technical textiles.

U.S. Free Trade Agreement (FTA) partners, particularly Mexico, remain important to exporters. The trade agreement between the United States and Mexico is critical to improving U.S. competitiveness in these markets.

Challenges and Barriers to Technical Textile Exports

Despite the country's close integration with the United States and Canada through NAFTA, the textile and apparel sector in Mexico has been facing an increasingly strong competitive challenge from China and other Asian producers. Mexico needs to take notice of this and to address this competition and increase its competitiveness in textiles to maintain its standing as the top destination for U.S. exports of technical textiles.

Another challenge facing U.S. exporters is Mexico's tax authority, the Servicio de Administración Tributaria (SAT). SAT has been conducting extensive NAFTA verification of origin audits for textile and apparel imports since 2007. Companies selected for audits must respond with all requested documentation within a very short period of time or risk being assessed penalties for non-compliance. SAT recently implemented new streamlined procedures and posted information to its external website. Cases that are not yet in the Mexican tax courts may be reconsidered under the new procedures. ITA is paying close attention to this issue to make sure U.S. exporters are aware of these procedures.

Additionally, In December 2014, the Mexican Government introduced six new trade policy measures that the U.S. industry believes are devised to bolster Mexico's textile and apparel industry. These include four customs enforcement measures that are intended to increase government scrutiny of imports of textile and apparel products, especially those that are viewed to be undervalued by the Mexican Government.[54] Another measure establishes a minimum reference price for textile and apparel products. Shipments entered below that price would be subject to an investigation and potential penalties.[55] Lastly, textile and apparel importers will be required to be listed on a sector specific registry and companies not listed on the registry will not be permitted to import these products. It is important to note that these new measures do not apply to goods entering Mexico under a valid NAFTA certificate of origin.

Opportunities for U.S. Companies

Mexico offers a highly accessible market for U.S. exporters and is a significant textile market for the United States. The technical textile industries in Mexico are experiencing remarkable growth brought about by increasing domestic demand and the shifting of production back to the region.[56] This increase in demand has resulted in the need for greater investments in the technical textile market and is a great opportunity for U.S. exporters to increase their presence in Mexico.

This has encouraged manufacturers in Mexico to use U.S.-made yarns and fabrics in the production of all forms of technical textiles. Furthermore, U.S. exports are far exceeding Mexican imports, reflecting the Mexican industry's heavy reliance on imported raw materials, particularly from the United States.

As demand for technical textiles continues to grow, meeting that demand will depend on the Mexican textile industry's commitment to operating in these industries, which, so far, by examining the trade data it has proven flexible enough to adapt to this change. Mexico now needs to go one step further and tap into other areas of specialization.

Non-wovens

Mexico is one of a select group of countries that has been identified as an emerging market for nonwoven textiles. In the Western Hemisphere it is the top market for this sector.

Mexico is the number one market for U.S. nonwoven exports and has been the top export market for U.S. nonwovens since 2009. Since 2009 exports of U.S. produced nonwovens have grown 14.4 percent annually.

Specialty and Industrial Fabrics

There is a great deal of interest in Mexico and Central America for the types of specialty fabrics and related products produced in the United States. Since 2008 Mexico has been the top export market for U.S. specialty and industrial fabrics. Specialty and industrial fabric exports were $1.5 billion in 2012, an increase of 20.7 percent from the 2011 level, and accounted for nearly 30 percent of total U.S. textile and apparel exports to Mexico. U.S. exporters will find the competitive advantages of doing business with an FTA partner country extremely rewarding.

For 2014, U.S. specialty and industrial fabric exports to Mexico accounted for approximately 48 percent of total specialty and industrial textile exports, representing a 13.4 percent increase over the previous year.

Medical Textiles

Mexico is the largest market for medical textiles exported from the United States. For 2014, Mexico market share was 29 percent. Additionally, trade in this sector with Mexico is projected to increase 36 percent from 2013 to 2016.

Protective Apparel

Mexico has been producing and developing protective textile products for many years. The United States has noticed these products, which are appealing from both a technical and a commercial perspective, and because they meet all the required U.S. standards. For U.S. manufacturers it's more complicated to go to Asia, whereas Mexico offers a value chain that is closer and more controlled, which is something that greatly interests final users in the United States. This could be another export opportunity for U.S. protective textile producers. Through developing relationships with Mexican counterparts, the United States could increase its exports of protective textile products.

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Taiwan

Taiwan's textile and apparel manufacturers previously struggled to overcome the twin hurdles of a changing global market and the widely held perception that they were no longer providing a viable option for textile production. But support from Taiwan, coupled with the development of an array of exciting products, has brought these firms back from the brink, repositioning them for what many believe will be the dawn of a long-term era of niche market opportunities, particularly in the field of technical textiles. The increased buying power of Taiwan textile producers should offer an important opportunity for U.S. exporters.

Non-wovens	Spec. & Ind.	Overall Rank
9	17	15
Medical	**Protective**	
14	35	

Taiwan's textile and apparel manufacturers can look forward to a bright future as long as the Taiwan authorities and industry groups continue working hand in hand to reboot the industry. They both have committed to ensuring that no expense or effort will be spared in guaranteeing that all participants get the assistance necessary to take advantage of new market conditions and the abundance of opportunities opening up around the world.[57]

For Taiwan, however, the genuinely lucrative opportunities do not lie in the segment of the market crammed with rivals tussling over low-hanging fruit. Taiwan has determined that the real success is to be found in creating cutting-edge products that will be attractive to the United States and Western Europe.

Taiwan's textile industry stands out in research and development, aiming at the combination of fashionable, functional and eco-friendly textiles. The chemical fiber-based supply chain and those eco-friendly fibers, have satisfied downstream firms', (including weaving industry, international brands and distributors) needs with high quality materials and service.

Taiwan started this process by focusing on developing functional fibers and fabrics. Textiles for home decor are now moving towards high-tech industrial textiles, building an industry value chain that integrates all production technologies and has increased the need of foreign technical textiles, predominately from U.S. producers.

Overview of the Technical Textile Market

The Taiwan textile industry has undergone a number of changes over the past few years. Increased labor costs and environmental pollution caused much of the industry to relocate overseas. However, Taiwan has decided instead of competing with rivals for the low skill, labor intensive sector of the apparel market, future opportunity is to be found in creating products through acquiring inputs from U.S. advanced technical textile markets.

In May of 2011 Taiwan advanced this goal when five textile and apparel centers began operations around Taiwan. Initiated by the Ministry of Economic Affairs (MOEA), the centers are targeting different segments of the industry for cultivation, turning out high-demand products that capitalize on the island's culture of innovation and creativity. In addition, they function as R&D hubs and incubators for associated industries that will add further value to Taiwan's textile and garment exports.

To spur this resurgence, Taiwan has been utilizing products produced by the U.S. technical textile sector. In 2013, Taiwan was the seventeenth largest market for technical textile exports from the United States. It is projected to improve to fifteenth by 2016, as the United States is expected to export 29 percent more technical textiles to Taiwan over the next two years.

Furthermore, U.S. and foreign firms related to technical fabrics have established business relationships with Taiwan. In some instances there are competing interests in Taiwan among these firms. These include DuPont and Invista from America;

Lenzing from Austria; Toray, Teijin Fibers, Asahi KASEI and TOYOBO from Japan; Nylstar from Italy; BASF and Bayer from Germany and Hyosung from Korea. The above firms are suppliers which provide Taiwan's technical textile industry with fibers and raw materials, and they are Taiwan's important partners in helping the advancement of Taiwan's technical textile sector.

Aside from home decor textiles, other applications for technical textile industries such as electronics, construction, civil engineering, transportation, aerospace, agriculture, environment and fire safe protection are increasing gradually. Each of these industries needs different kinds of textiles. Therefore, cross-industry alliances will be the future trends that help to expand Taiwan's international market. Taiwan's market will continue its dependence on foreign technical textile inputs and this will generate increased opportunity for U.S. producers.

Challenges and Barriers to Technical Textile Exports

In May 2014 Taiwan's unemployment rate had fallen to a six-year low of 3.91 percent, which is also its lowest since May 2008.[58] These figures show that the island's economy is back on track, but anemic growth of less than 3 percent shows that it is just keeping pace with the global upturn and not enough to break out of the doldrums.[59] Moreover, such growth is insufficient to remedy the long-term decline in the island's competitiveness.

Most worrying to Taiwan's textile market is China gaining a stronger hold on Taiwan's domestic market and putting ever increasing pressure on Taiwan's competitiveness. If Taiwan's manufacturers do not quicken their transformation, the next recessionary wave could be even more serious.

The Industrial Development Bureau noted that Korea is one of Taiwan's main competitors in terms of textiles, and Korea has gradually completed negotiations on its FTAs with ASEAN, the United States, the European Union, and other countries. This could cause a negative impact on Taiwan's textile manufacturers. If the China - Korea FTA causes the gap to increase between Korea and Taiwan there could be a significant contraction in the technical textile market in Taiwan, and, in turn, a decrease in imports from the United States. This competitive disadvantage could affect the textile market in both Taiwan and to a smaller extent the United States.[60]

Opportunities for U.S. Companies

Taiwan has introduced a new program called, "Program for Promoting the Development of New-Generation High-Tech Industrial Technology". The goal of the program is to revive culture, education and technology. These programs are helping Taiwan's textile industry to assume a leading role in the development of functional and technical textiles. Additionally, since 2008, the Industrial Development Bureau, Ministry of Economic Affairs has been working to increase the value of industrial textiles produced in Taiwan.

Furthermore, Taiwan is already putting a plan into place to challenge the negative impact that the Taiwan textile industry could face due to the China-Korea FTA. Taiwan is planning to face global competition by strengthening global marketing and multi point distribution. It will seek to expand sales in emerging markets and improve technical innovation.[61]

Thus, this will generate an increased need for technical textile inputs. U.S. exporters will be able to play a role in these new programs by continuing to expand their presence in Taiwan. The spillover effects can already be seen in technical textile trade between the United States and Taiwan. U.S. exports of technical textiles to Taiwan increased from $37.5 million in 2008 to $80.5 million in 2014 and are projected to increase another $23.5 million (29 percent) over the next two years.

Non-wovens

Taiwan has been increasing its demand for nonwoven textiles from the United States consistently since 2008. In 2008, Taiwan was the 27th largest market for U.S. nonwovens, which increased to 15th by 2014 and is projected to see another dramatic jump to 9th by 2016.

The increase in demand for nonwovens can be attributed to Taiwan's well-developed manufacturing sector and rising incomes and standards of living there are causing individuals to purchase convenience items, promoting the production of disposable infant diapers among other products using more and more nonwoven fabrics.

Specialty and Industrial Fabrics

Aiming at assisting the Taiwan textile industry to upgrade and transform, in addition to helping the developing apparel industry, Taiwan has opted for a

textile strategy of developing household and industrial textiles. Its goal is to establish a global R&D and production base of functional and industrial textile production.

The results of this strategy are starting to play out in the data. In 2014 Taiwan was the twentieth largest market for specialty and Industrial fabrics. Its position is projected to improve three spots to seventeenth by 2016 with an increase in exported goods from the United States of 22 percent.

Medical Textiles

Taiwan's innovation in material and technique has pioneered improvements in function and quality of health care related products and has received great attention from international buyers at major medical trade shows.

Imports and exports of Taiwan health textiles vary significantly, however, among different sectors. Generally, medical textiles such as sanitary items are more import-oriented whereas health care items are developed more for export.[62] U.S. exports of medical textiles to Taiwan totaled $13.8 million in 2014 and are projected to increase 9 percent to $15 million by 2016. A major export market for Taiwan is the Philippines. The Philippine market has shown a steady growth over the years, which reveals the importance of the Southeast Asia market for Taiwan manufacturers.[63] This in turn will increase Taiwan's demand for medical textile inputs, and put the U.S. in a position to take advantage of this need as the U.S. industry is seeing expanded growth in this sector while increasing its geographical reach.

Producers of medical textiles in Taiwan are well-positioned to match new trends since they enjoy a strong textile industry infrastructure, complete supply chains, sufficient human resources and matured production skills. Driven by the flexibility and competitiveness of small and medium sized enterprises, Taiwan makers are well-known for their tailor-made ability, which offers high flexibility capable of limited production quantities. Their products can meet required specification and be highly competitive compared with foreign competitors.[64]

Taiwan medical textile producers have been at the forefront of using R&D to deliver new technology in the fields of macromolecule, medical and biotech. The introductions of chitosan, bamboo fiber and special metals have led to new functions including methods of enhancing warmth, anti-bacteria, anti-odor and blood circulation. In short, Taiwan's health textile industry is heading toward great prosperity.

This all bodes well for U.S. exporters of medical textiles to Taiwan. From 2008 to 2014 medical textile exports to Taiwan grew at an annual rate of 4.5 percent. Taiwan's advanced medical textile production methods and increased demand in the region will only increase the demand for medical textiles from the United States.

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Vietnam

Vietnam's textile and apparel industry is growing faster than that of many of its regional competitors, and foreign companies are starting to pour money into Vietnam to take advantage of potential economic opportunities from future free trade agreements. U.S. companies will have the chance to increase their exports of technical textiles to more consumers and businesses in Vietnam.

Non-wovens	Spec. & Ind.	Overall Rank
10	26	20

Medical	Protective
42	52

The Vietnamese textile industry, with more than 3,800 companies, is the country's leading export sector. The country ranks fifth worldwide in textile and apparel exports and has a labor force in that sector of more than 2 million people, of whom 1.3 million are working directly in the industry.

The United States-Vietnam Bilateral Trade Agreement (BTA), which entered into force December 10, 2001, forms the basis for the current U.S.-Vietnam bilateral trade relationship. It served as an important precursor to Vietnam's accession to the WTO on January 11, 2007. As the U.S.-Vietnam Bilateral Trade Agreement opens up new markets for U.S. goods and services, and as Vietnam meets its WTO commitments, the Vietnam market represents the next great opportunity for all types of U.S. companies, including those producing textiles.

Vietnam's textile and apparel industry has benefitted from increased foreign investment over the past several years. Textile and apparel trade grew consistently through the economic downturn of 2008-2009. The industry's greatest advantage is its low-cost labor and relatively young and stable worker base.

About 70 percent of Vietnam's textile and apparel production is via "processing trade" using imported textiles and other inputs, predominantly from China. However, pending trade agreements have the potential to divert some trade from China to the United States. Investment in fiber, yarn and textile manufacturing is rising, particularly for spinning and weaving, so the quantity and quality of textile production is likely to increase.

Many textile and garment companies in the region have already begun to move production to Vietnam. Major U.S. retailers such as Sara Lee, JC Penney, Express, the Gap, Macy's, Nordstrom's, Mast Industries and American Eagle source a sizeable portion of their imports from Vietnam.

Vietnam is becoming known for being a prime location for investors operating in the textile industry. Manufacturers are heading to Vietnam assuming a positive completion to the Trans-Pacific Partnership Agreement (TPP). Under this free trade agreement, Vietnam could see tariffs on textiles and garments drastically reduced. In order to take advantage of this potential tariff reduction, foreign companies must physically locate themselves in Vietnam and begin producing textiles and garments for export.[65]

Vietnam's textile industry will depend on demand from the United States and the European Union, which accounts for 18 percent and 14 percent of Vietnam's exports respectively. This demand will purportedly contribute to export growth of 20 percent this year. Export businesses, especially foreign-invested manufacturing firms, will provide a much needed boost to Vietnam's growth.[66]

Overview of the Technical Textile Market

Vietnam has a rapidly growing and vibrant textile industry, largely based on imported inputs. U.S. exports of technical textiles to Vietnam grew by an impressive 444 percent to $39.9 million between 2008 and 2014.

In 2009, U.S. exports of technical textiles to Vietnam accounted for about 21 percent of total U.S. textile and apparel exports to Vietnam, and increased to 40 percent by 2014. Export growth has been especially fast for fabrics and textile mill products, particularly specialty and industrial fabrics. To take advantage of this growing trend and dependence of U.S. inputs, Vietnam continues to import machinery to support its growing technical textile sector.

Currently, Vietnam comprises a very small percentage of U.S. technical textile exports, though this growth is encouraging for producers. U.S. exports of niche products such as specialty and industrial fabrics increased markedly over the six year period of 2008 to 2014, increasing from $3.6 million to $13.8 million.

U.S. industry associations, such as the Industrial Fabrics Association International (IFAI), are very interested in the market potential in Vietnam. IFAI plans to increase textile niche product exports to Vietnam. As Vietnam moves up the production chain, up-and-coming manufacturing sectors, such as autos, marine and hospitality sectors will also offer market potential for U.S. technical textiles. To support these new manufacturing sectors, Vietnam will need to expand markets, diversify product categories and designs, and enhance product quality.[67]

Challenges and Barriers to Technical Textile Exports

Doing business in Vietnam can be challenging. In 2008, Vietnam introduced an import licensing regime on a number of products, mostly consumer goods. On May 28, 2010, Vietnam's Ministry of Industry and Trade published Circular 24 which extended the list of products for which licenses that were required, including textile and apparel products. This requires local importers to obtain an automatic import license (AIL) before shipments can be unloaded at a Vietnamese port.

The license is not, however, automatic, as products cannot move until the importer has the license in hand, a process that is supposed to take seven days but in practice often takes longer. Many U.S. companies have reported that delays in receiving AILs have resulted in decreased shipments into Vietnam and significant losses. Importers must wait until they have an original Bill of Lading (BL) before applying for the AIL, which limits their ability to apply for AILs early to avoid delays (a BL cannot be obtained until cargo has been loaded).

Additionally, while Vietnam has reduced tariffs on many products in line with its WTO commitments, high tariffs on selected products remain. U.S. industry has identified a range of products, including textile products, where it sees significant potential of export growth if Vietnam's tariffs could be reduced further.

Investors in Vietnam also often find poorly developed infrastructure, high start-up costs, arcane land acquisition and transfer regulations and procedures, and a shortage of skilled personnel.

Opportunities for U.S. Companies

Vietnam has made significant progress in eliminating nontariff barriers (NTBs) under the 2001 United States-Vietnam BTA and through Vietnam's accession to the WTO. Additionally, Vietnam's engagement and commitment to the TPP agreement could afford U.S. textile producers preferential access to the Vietnamese market. This would most likely result in new business opportunities for U.S. fiber, yarn, and fabric producers. Vietnamese producers depend largely on fabric imported from China, however with the successful completion of the TPP agreement this trade could to shift to U.S. producers.

Figures from the Vietnam Textile and Apparel Association (Vitas) showed that 70 percent of more than 3,700 textile factories in the country make apparel; only 6 percent produce yarn, 17 percent make fabric, and 4 percent are dye houses. There is a huge void in textile production and as Vietnam's technical textile industry continues to evolve this will only increase opportunities for exports from the United States. Vietnam is a true emerging market, offering ground floor and growing opportunities for U.S. exporters and investors.

Moreover, with plentiful competitively-priced labor, Vietnam has a distinct cost advantage over other countries such as China. Vietnam also has developed supportive government policies, begun to implement major infrastructure projects and introduced incentives for foreign producers. All of this has the goal to attract foreign direct investment.

Non-wovens

Vietnam has emerged as a hotbed of activity in nonwoven products as U.S. manufacturers, led by

Procter & Gamble, continue to invest ambitiously in the region. Vietnam is seizing this opportunity with an industry restructuring plan for the nonwovens market over the next two years. This should result in attracting additional investment.

In 2014, U.S. exporters saw significant growth in the nonwovens sector, which accounted for roughly 57 percent of U.S. technical textile exports to Vietnam. Over the past six years nonwoven exports to Vietnam from the United States have grown at an annual rate of 46 percent.

Specialty and Industrial Fabrics

Vietnam has been expanding its reach into industrial fabrics and higher-end textiles in recent years, including tire cord and coated fabrics. Overall U.S. exports of specialty and industrial fabrics have grown 25 percent annually since 2008 but in dollars the U.S. export totals are low compared to other competing countries.

Protective Apparel

Of the four technical textile sub sectors, protective apparel has seen the smallest growth and is the least significant. Vietnamese garment and textile companies have to meet U.S. health and safety requirements for consumers, like flame retardant standards. Health safety is always of a top concern of consumer protection associations and the U.S. Government. They introduce very high standards and regulations on garment and textile raw materials to protect consumers and force manufacturers and exporters to invest in modern, advanced production technologies to be certified. These requirements can be challenging for manufacturers and exporters in developing countries, including Vietnam, because they lack capital and modern technologies.

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Appendix 1: Sector Definitions

The following section describes each technical textile subsector covered by ITA's *Technical Textile Top Markets Study.* While each sector is constantly evolving every year, an understanding of each technical textile market is important for policy-makers as new export promotion strategies are developed.

Nonwovens

Nonwoven fabrics are not made in the traditional textile sense by weaving or knitting and do not require converting the fibers to yarn. Rather, they can be defined as sheet or web structures bonded together by entangling fiber or filaments mechanically, thermally, or chemically. They are flat, porous sheets that are made directly from separate fibers or from molten plastic or plastic film. They are used in numerous applications, including; baby diapers, adult incontinence products, wet wipes, surgical drapes and covers, liquid cartridge and bag filters, face masks, air-conditioning filters, soil stabilizers and roadway underlayment, erosion control, drainage systems, insulation (fiberglass batting), pillows, cushions, and upholstery padding, carpet backing, automotive headliners and upholstery, house wraps, and disposable clothing (foot coverings, coveralls).[68]

Specialty and Industrial Fabrics

Specialty and industrial fabrics are usually subjected to more severe wear and tear than non-industrial fabrics. Industrial fabrics may be produced from virtually all types of textile fibers and threads. The most widely used industrial fabrics are cord fabrics, belting, conveyor belting, hose fabrics, press cloth, and filter cloth. Specialty and industrial fabrics are also used for the automobile and light vehicle market. Geotextiles are used in erosion control, and road construction. Lastly, other uses are parachutes, the shells of inflatable structures, tents, flexible skirts on air-cushion vehicles, leather substitutes, and sieves.

Medical Textiles

Medical textiles include all textile products that contribute to improving human health and well-being, protecting against infection and disease, providing external support for injured limbs, promoting the healing of wounds and replacing injured and diseased tissues and organs.[69] Medical textiles include items such as, bandages, wound dressings, face masks, and hospital linens. Biotextiles (a subset of medical textiles) are structures composed of textile fibers designed for use in specific biological environments. Biotextiles include implantable devices such as surgical sutures, hernia repair fabrics, vascular and endovascular prostheses, artificial skin, anterior cruciate ligament (ACL) prostheses and parts of artificial hearts.

Protective Apparel

Protective apparel refers to garments, or textile related products that prevent a person (or product) from coming into contact with, or that protects from, and/or reduces the risk of exposure to hostile elements or environments. Furthermore, protective apparel offers protection against the danger or risk which has the potential to be life threatening or has significant potential for serious injuries or illnesses to the person working in and around the hazard. The major applications of the protective apparel are chemical, mechanical, radiation, visibility, bacterial/viral, extreme cold, and extreme heat and/or fire.

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Appendix 2: Full Country Rankings

Below please find the complete rankings of all markets considered in the analysis. Rankings are broken into overall rankings and subsector rankings.

Overall Technical Textile Market Rankings

1	Mexico	36	Spain
2	Canada	37	Nicaragua
3	China	38	Switzerland
4	Germany	39	Ecuador
5	Japan	40	Austria
6	Hong Kong	41	Venezuela
7	United Kingdom	42	Indonesia
8	Belgium	43	New Zealand
9	Brazil	44	South Africa
10	Honduras	45	Russia
11	Netherlands	46	Guatemala
12	Korea	47	Finland
13	Dominican Republic	48	Qatar
14	Australia	49	Turkey
15	Taiwan	50	Israel
16	Singapore	51	Uruguay
17	India	52	Panama
18	United Arab Emirates	53	Sri Lanka
19	Colombia	54	Trinidad & Tobago
20	Vietnam	55	Sweden
21	Poland	56	Philippines
22	Italy	57	Kuwait
23	Malaysia	58	Denmark
24	Saudi Arabia	59	Egypt
25	France	60	Pakistan
26	Chile	61	Norway
27	Thailand	62	Bahamas
28	Peru	63	Hungary
29	El Salvador	64	Bahrain
30	Costa Rica	65	Jamaica
31	Argentina	66	Nigeria
32	Haiti	67	Afghanistan
33	Ireland	68	Iraq
34	Czech Republic	69	Lebanon
35	Luxembourg	70	Latvia

Top Non-Woven Market Rankings

1 Mexico
2 Canada
3 China
4 Belgium
5 Honduras
6 Germany
7 Japan
8 Brazil
9 Taiwan
10 Vietnam
11 United Kingdom
12 Korea
13 Dominican Republic
14 India
15 Netherlands
16 Colombia
17 Czech Republic
18 Luxembourg
19 Thailand
20 Hong Kong
21 Poland
22 Argentina
23 Australia
24 Malaysia
25 Peru
26 Costa Rica
27 Singapore
28 El Salvador
29 Ireland
30 Indonesia
31 Uruguay
32 New Zealand
33 Spain
34 Italy
35 France
36 Chile
37 Venezuela
38 Russia
39 Saudi Arabia
40 Ecuador
41 United Arab Emirates
42 Switzerland
43 Nicaragua
44 Israel
45 Somalia
46 Sweden
47 Guatemala
48 Panama
49 Cambodia
50 Turkey
51 Trinidad & Tobago
52 Hungary
53 Barbados
54 Austria
55 Finland
56 Norway
57 Suriname
58 Qatar
59 South Africa
60 Nigeria
61 Bulgaria
62 Algeria
63 Philippines
64 Slovakia
65 Kuwait
66 Bahamas
67 Pakistan
68 Denmark

Top Specialty and Industrial Fabrics Market Rankings

1	Mexico	41	Russia	81	Bahrain
2	Canada	42	Turkey	82	Jordan
3	China	43	Venezuela	83	Greece
4	Hong Kong	44	South Africa	84	Paraguay
5	Japan	45	Indonesia	85	Lebanon
6	United Kingdom	46	New Zealand	86	Kenya
7	Germany	47	Israel	87	Cambodia
8	Brazil	48	Czech Republic	88	Oman
9	Korea	49	Denmark	89	Barbados
10	Australia	50	Philippines	90	Slovenia
11	Dominican Republic	51	Kuwait	91	Morocco
12	India	52	Bangladesh	92	Iceland
13	Italy	53	Pakistan	93	Tunisia
14	Haiti	54	Egypt	94	Kazakhstan
15	Netherlands	55	Trinidad & Tobago		
16	Malaysia	56	Switzerland		
17	Taiwan	57	Bahamas		
18	France	58	Panama		
19	Belgium	59	Sweden		
20	Honduras	60	Sri Lanka		
21	Singapore	61	Jamaica		
22	Poland	62	Suriname		
23	Nicaragua	63	Romania		
24	Costa Rica	64	Slovakia		
25	United Arab Emirates	65	Guinea		
26	Vietnam	66	Tanzania		
27	Austria	67	Uruguay		
28	Chile	68	Lithuania		
29	El Salvador	69	Nigeria		
30	Colombia	70	Angola		
31	Thailand	71	Norway		
32	Qatar	72	Hungary		
33	Finland	73	Bolivia		
34	Ireland	74	Ghana		
35	Peru	75	Iraq		
36	Argentina	76	Luxembourg		
37	Guatemala	77	Portugal		
38	Spain	78	Estonia		
39	Saudi Arabia	79	Bulgaria		
40	Ecuador	80	Guyana		

Top Medical Textile Market Rankings

1 Mexico
2 Canada
3 Germany
4 Netherlands
5 Japan
6 Dominican Republic
7 Australia
8 China
9 Singapore
10 Brazil
11 Korea
12 Switzerland
13 United Kingdom
14 Taiwan
15 Belgium
16 Saudi Arabia
17 Italy
18 Chile
19 South Africa
20 Hong Kong
21 India
22 Poland
23 France
24 Spain
25 United Arab Emirates
26 Ireland
27 Austria
28 Iraq
29 Peru
30 Malaysia
31 Argentina
32 Venezuela
33 Ecuador
34 Colombia
35 Panama
36 Israel
37 Costa Rica
38 Thailand
39 New Zealand
40 Czech Republic
41 Honduras
42 Vietnam
43 Sweden
44 Denmark
45 Indonesia
46 Ukraine
47 Philippines
48 Guatemala
49 Uruguay
50 Trinidad & Tobago
51 Turkey
52 Russia
53 El Salvador
54 Norway
55 Finland
56 Bolivia
57 Greece
58 Bahamas
59 Nicaragua
60 Qatar
61 Portugal
62 Hungary
63 Jamaica
64 Barbados

Top Protective Apparel Market Rankings

1	Canada	41	Malaysia
2	Mexico	42	Egypt
3	United Arab Emirates	43	Qatar
4	Japan	44	Honduras
5	United Kingdom	45	Kuwait
6	Dominican Republic	46	Paraguay
7	Singapore	47	Guatemala
8	Saudi Arabia	48	Sri Lanka
9	Brazil	49	New Zealand
10	Chile	50	Belgium
11	Australia	51	Switzerland
12	China	52	Vietnam
13	Germany	53	Sweden
14	Korea	54	Nigeria
15	Colombia	55	Philippines
16	Peru	56	Pakistan
17	Poland	57	Norway
18	France	58	Kazakhstan
19	Hong Kong	59	Zambia
20	Netherlands	60	Indonesia
21	Ecuador	61	Latvia
22	Panama	62	Burundi
23	Venezuela	63	Spain
24	Argentina	64	Equatorial Guinea
25	Italy	65	Jamaica
26	Angola	66	El Salvador
27	India	67	Bolivia
28	Turkey	68	Congo
29	Trinidad & Tobago	69	Austria
30	Russia	70	Ireland
31	Uruguay	71	Bermuda
32	Bahrain	72	Brunei Darussalam
33	South Africa	73	Lebanon
34	Luxembourg	74	Czech Republic
35	Taiwan	75	Oman
36	Afghanistan	76	Nicaragua
37	Israel	77	Cameroon
38	Thailand	78	Kenya
39	Costa Rica	79	Barbados
40	Jordan	80	Guyana

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